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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/995,925 | 11/28/2001 | Mark Gagner | 2001P22392US | 1140 |

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Siemens Corporation
Intellectual Property Department
186 Wood Avenue South
Iselin, NJ 08830

EXAMINER

CHOW, CHIH CHING

| ART UNIT | PAPER NUMBER |
|----------|--------------|
| 2122 | |

DATE MAILED: 02/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|-------------------------------|------------------------------|--|
| Office Action Summary | Application No. 09/995,925 | Applicant(s) GAGNER, MARK | |
| | Examiner Chih-Ching Chow | Art Unit 2122 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 November 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This action is responsive to the application filed on November 28, 2001.
2. The priority date considered for this application is November 28, 2001.
3. Claims 1-18 have been examined.

Claim Rejections - 35 USC § 101

4. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5. Claims 1-8 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. While the claims are in the technological arts, they are not limited to "a practical application of an abstract idea which produced a useful, concrete, and tangible results." State Street Bank & Trust v. Signature Financial Group, Inc., 149 F. 3d 1368, 1375 n. 9 (Fed. Cir. 1998).

Claim 1 recites:

'An apparatus for executing a block program comprising:

a block table listing a plurality of records corresponding to a plurality of blocks in the block program;

a block library for holding a plurality of algorithms associated with said blocks; and, means for executing said blocks in said block program in accordance with said associated algorithms;

wherein said executing means selectively executes said blocks in the block program that receives a new input value which is different from a previous input value.'

Where 'a block table listing a plurality of records', 'a plurality of blocks in the block program', 'a block library', 'a plurality of algorithms', and 'executing means' are all

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software components, i.e., computer programs per se. The system is inoperative with only software components. It's not clear how does the 'apparatus' apply to the software components mentioned above. Specifically, the claims are directed to a computer software 'block program' structure, however Applicants fail to disclose that these software components are tangibly embodied and executed by a piece of hardware and that their functions have practical applications which produce useful, concrete, and tangible results under the State Street Formulation. Claims 2-8, which depend from claim 1, are all rejected under 35 USC § 101 for the same reasons.

6. Claims 9-16 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. While the claims are in the technological arts, they are not limited to "a practical application of an abstract idea which produced a useful, concrete, and tangible results." State Street Bank & Trust v. Signature Financial Group, Inc., 149 F. 3d 1368, 1375 n. 9 (Fed. Cir. 1998).

Claim 9 recites:

'A method for executing a block program comprising the steps of:

- creating a block table of plurality of block records that correspond to a plurality of blocks used in the block program;

- creating a library for holding a plurality of algorithms for executing functions associated with said blocks;

- selectively setting a flag in said block records when at least one input value of corresponding said blocks changes; and

- executing said algorithms of said blocks in said block program having corresponding block records that have said flag set.'

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Where 'a block table of plurality of block records', 'blocks used I the block program', 'a library', 'a plurality of algorithms', 'a flag', and 'block program' are all software components, i.e., computer programs per se. The system is inoperative with only software components. It's not clear what hardware is required to accomplish all the steps recited above. Specifically, the claims are directed to execute a computer software 'block program' structure, however Applicants fail to disclose that these software components are tangibly embodied and executed by a piece of hardware and that their functions have practical applications which produce useful, concrete, and tangible results under the State Street Formulation. Claims 10-16, which depend from claim 9, are all rejected under 35 USC § 101 for the same reasons.

7. Claims 17-18 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. While the claims are in the technological arts, they are not limited to "a practical application of an abstract idea which produced a useful, concrete, and tangible results." State Street Bank & Trust v. Signature Financial Group, Inc., 149 F. 3d 1368, 1375 n. 9 (Fed. Cir. 1998).

Claim 17 recites:

'A controller having a block program for controlling at least one device in a control network, comprising:

- a block table listing a plurality of records corresponding to a plurality of function blocks in the block program, said blocks each having at least one input for receiving an input value and at least one output for outputting an output value;
- a connector table listing records of connectors for operatively connecting

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said blocks;

a block library for holding algorithms associated with said blocks; and,
means for executing said blocks in said block program in accordance with said associated algorithms;

wherein said executing means selectively executes said blocks in the block program that receives a new input value which is different from a previous input value.'

Where 'a block table listing a plurality of records', 'a plurality of function blocks', 'a connector table listing records of connectors', 'a block library', 'algorithms', 'means for executing blocks', and 'block program' are all software components, i.e., computer programs per se. The system is inoperative with only software components. It's not clear what hardware does the controller utilize to accomplish all the steps recited above. Specifically, the claims are directed to execute a computer software 'block program' structure, however Applicants fail to disclose that these software components are tangibly embodied and executed by a piece of hardware and that their functions have practical applications which produce useful, concrete, and tangible results under the State Street Formulation. Claim 18, which depend from claim 17, are also rejected under 35 USC § 101 for the same reasons.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by US Patent No. 5, 313,615 by William Newman et al. (hereinafter "Newman").

CLAIM

1. An apparatus for executing a block program comprising:
a. a block table listing a plurality of records corresponding to a plurality of blocks in the block program;
b. a block library for holding a plurality of algorithms associated with said blocks; and, means for executing said blocks in said block program in accordance with said associated algorithms;
c. wherein said executing means selectively executes said blocks in the block program that receives a new input value which is different from a previous input value.

Newman

See Newman's abstract, "each block corresponds to a **software procedure** for performing at least one function (*each of the executing function is considered as an algorithm*) and has at **least one input** or at **least one output**." Also see Newman's figures 3A and 3C, Newman teaches using table listing for blocks in block diagram (*block program*). Further more, see Newman column 3, lines 7-11, "For any time, say T.sub.1 (time), the state at T.sub.1 (that is the state variables) and the input waveforms determine **uniquely the state** at any time T>T.sub.1" (*a new input value which is different from a previous input value*) and "the state at any time T and the inputs at any time T determine

uniquely the output value at time T of the block".

2. The apparatus as defined in claim 1 further including an execution image file for storing descriptions of said blocks and connections between said blocks.

For the feature of claim 1 see claim 1 rejection. The execution image file of current application is defined as claim 13 **"execution image file** storing said records for said blocks and said connectors." See Newman column 2, lines 28-32, "The netlist is a computer-readable form of the block diagram, **containing all the required information** about the block diagram, such as how the blocks are connected together, the software procedure call the block represents, parameter lists (*descriptions of said blocks and connections between said blocks*), etc", AND Newman column 18, lines 21-23, "The block function type is a computer-language **description of the type of function** (coefficient, "unit" delay, etc.) represented by the block."

3. The apparatus as defined in claim 1 further including means for inputting/outputting data to and from said executing means.

For the feature of claim 1 see claim 1 rejection. Also see Fig. 3A for Inputs and Outputs data.

4. The apparatus as defined in claim 1 wherein each of said records in said block table includes a field indicating whether a corresponding one of said blocks is to be executed by said executing means.

For the feature of claim 1 see claim 1 rejection. See Newman's claim 9, "The method of claim 7 wherein the step of processing comprises the step of generating a **sequence list indicative of the order** (*flag list*) in which such procedures are to be executed."

5. The apparatus as defined in claim 4 wherein each of said records in said block table further includes, a field for indicating the type of function performed by said corresponding one of said blocks, and a field for identifying said corresponding one of said blocks.

For the feature of claim 4 see claim 4 rejection. In Newman's FIG. 3A, 3B and 3C, they list fields for indicating the type of function performed (function name) by said corresponding one of said blocks.

6. The apparatus as defined in claim 5 wherein each of said records in said block table further includes,
at least one field for identifying at least one output connector connected to said corresponding one of said blocks,
at least one field for identifying at least one input connector connected to said corresponding one of said blocks,
at least one field for storing an input value of said corresponding one of said blocks, and
an output value field for storing an output value of said corresponding one of said blocks.

For the feature of claim 5 see claim 5 rejection. See Newman's FIG. 3A, it specifies 'output connector' (4th column) and 'input connector' (3rd column), and FIG. 3C, it specifies the 'input value' and 'output value' for each of said blocks.

7. The apparatus as defined in claim 1 further including a connector table listing a plurality of records of a plurality of connectors for operatively connecting said blocks.

For the feature of claim 1 see claim 1 rejection. See Newman column 1, lines 54-56, "The system configurator allows a user to specify the **topology** of the proposed system in terms of **interconnected functional blocks**". And column 2, lines 10-13, "The library contains information about each block, including its submodules, connections, documentation and high-level program code (*connector table listing*), all of

which can be made available to the designer through on-line windows."

8. The apparatus as defined in claim 7 wherein each of said records in said connector table includes a field identifying one of said blocks to which a corresponding connector is connected at a first end, and at least one field for identifying at least one of said blocks to which said corresponding connector is connected at a first end, and at least one second end.

For the feature of claim 7 see claim 7 rejection. For the rest of claim 8 feature see figure 3A-C, and claim 1 rejection.

9. A method for executing a block program comprising the steps of:
a. creating a block table of plurality of block records that correspond to a plurality of blocks used in the block program;
b. creating a library for holding a plurality of algorithms for executing functions associated with said blocks;
c. selectively setting a flag in said block records when at least one input value of corresponding said blocks changes; and
d. executing said algorithms of said blocks in said block program having corresponding block records that have said flag set.

For items a and b, same as claim 1 rejection; for items c and d see claim 4 rejection and Newman column 28, lines 48-51, "Each row of the figure **represents a change** in the status of either the blocklist pointer, blocklist or sequence list."

10. The method as defined in claim 9 further including the step of creating a connector table of records that correspond to connectors for operatively connecting said blocks.

For the feature of claim 9 see claim 9 rejection. For the rest of the claim 10 feature see claim 1 and 2 rejections.

operatively connecting said blocks.

11. The method as defined in claim 10 further including the step of subsequently setting a flag in said records corresponding to said blocks that are connected to at least one output of said blocks that have been executed, if a value of said at least one output of said executed blocks has changed.

For the feature of claim 10 see claim 10 rejection. For the rest of the claim 11 feature see claim 4 and 9 rejections, and Newman column 71, lines 50-53, "During block 994, a variable called 'OUTPUT UPDATED' (*an identification of a connector*) is set equal to the last output on the OLF list. The purpose of this variable is to **flag the last output on the OLF list that has been updated.**"

12. The method as defined in claim 11 wherein said step of subsequently setting said flag includes the steps of obtaining an identification of a connector corresponding to said at least one output of said executed blocks from said block records corresponding to said executed blocks, and obtaining an identification of blocks that are connected to said connector.

For the feature of claim 11 see claim 11 rejection. For the rest of the claim 12 feature see claim 4, 9, and 11 rejections.

13. The method as defined in claim 10, wherein said block table and said connector tables are created from an execution image file storing said records for said blocks and said connectors.

For the feature of claim 10 see claim 10 rejection. For the rest of claim 13 feature see claim 2 rejection.

15. The method as defined in claim 9 wherein said records in said block table are listed in an order corresponding to a predetermined order in which said

For the feature of claim 9 see claim 9 rejection. For the rest of claim 15 feature see claim 4 rejection.

blocks are adapted to be executed in said block program.

16. The method as defined in claim 15 wherein said executing step includes a step of checking each record in said block table in said listed order for said block records having said flag set.

Same as claim 15 rejection.

17. A controller having a block program for controlling at least one device in a control network, comprising:

Same as claim 1; in order for Newman's disclosure to work, the block program must contain at least one device in a control network, since it is meant to work for a simulator system.

a. a block table listing a plurality of records corresponding to a plurality of function blocks in the block program, said blocks each having at least one input for receiving an input value and at least one output for outputting an output value;

b. a connector table listing records of connectors for operatively connecting said blocks;

c. a block library for holding algorithms associated with said blocks; and,

d. means for executing said blocks in said block program in accordance with said associated algorithms;

e. wherein said executing means selectively executes said blocks in the block program that receives a new input value which is different from a previous input value.

18. The controller as defined in claim 17 further including means for inputting

For the feature of claim 17 see claim 17 rejection. For the rest of the claim 18

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data to said executing means from the devices and the control network, and outputting data to the devices and the control network from said executing means. feature see claim 1 rejection.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 5, 313,615 by William Newman et al. (hereinafter "Newman"), in view of U.S. Patent No. 5,325,526 by Donald Cameron et al. (hereinafter "Cameron").

CLAIM

14. The method as defined in claim 9 wherein said executing step is performed at every predetermined time interval.

Newman / Cameron

For the feature of claim 9 see claim 9 rejection. Newman teaches all aspects of claim 14, but he does not mention 'executing step is performed at every predetermined time interval' specifically, however, Cameron teaches it in an analogous prior art. In Cameron column 5, lines 64-67, "In a typical implementation of this single processor architecture, each task, T1, T2, and T3, is given a **predetermined time slice** ('activation quantum') during which a single task is allowed to execute". It would have been obvious to a person of ordinary skill in the art at the time of the invention was made to supplement Newman's disclosure of the block program control by the executing programs in predefined time taught by Cameron, for the purpose of monitoring the execution times for each of the tasks (see Cameron column 6, line 1).

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Conclusion

The following summarizes the status of the claims:

35 USC § 101 rejection: Claims 1-18

35 USC § 102 rejection: Claims 1-13, 15-18

35 USC § 103 rejection: Claim 14

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chih-Ching Chow whose telephone number is 571-272-3693. The examiner can normally be reached on 7:00am - 3:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tuan Dam can be reached on 571-272-3695. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Chih-Ching Chow

Examiner

cc  Art Unit 2122

ANTONY NGUYEN-BA
PRIMARY EXAMINER